TOBACCO INDUSTRY RESEARCH COMMITTEE
350 FIFTH AVENUE NEW YORK 1, N. Y.

Application For Research Grants

Date: June 15, 1955

1. Name of Investigator: Arthur H. Steinhaus

2. Title: Professor of Physiology

3. Institution & Address: George Williams College
5315 South Drexel Avenue, Chicago 15, Illinois

4. Project or Subject: Does tobacco smoke influence the production or action of sex hormone. To date we have shown that (1) tobacco smoke reduces spontaneous activity in the white rat, (2) this reduction is roughly proportional to the amount of nicotine in the tobacco, (3) in castrates there is no reduction attributable to smoking, (4) we have indication that with the injection of male hormone the effect observed in normal rats can be reproduced in castrates, (5) the estral cycle as observed by vaginal smear technique is not modified by two months of exposure to tobacco smoke. We would now like to do the following:

1. Repeat castrate study with graduated hormone additions.
2. Observe vaginal smears in spayed rats with graduated hormone additions.
3. Develop technique and observe effect of smoking on sex hormone excretion in man.

1. Double our capacity to study spontaneous activity of rats in fresh and smoke-laden air.
2. Compare our method of producing and administering cigarette smoke with that developed by others implied in Mr. Hockett's letter. Currently we use continuous suction which "smokes" one cigarette in 3-4 minutes into a closed box containing rats. This is repeated at hourly intervals for twelve hours per day.
3. Observe spontaneous activity in castrate males and females in fresh air and in smoke to determine a base line of activity and then observe increases due to the addition of small graduated amounts of testosterone or estrin. We would then determine what levels of hormone administration are offset by "smoking."
4. Determine minimal amounts of estrin necessary to activate the vaginal cycle in spayed rats and then determine if smoking is able to offset the effect of such minimal amounts.
5. Prepare for studies on man even while we are doing this animal work by perfecting ourselves in methods of assaying the urinary steriods in man so as to determine if smoking will produce quantitative or qualitative changes in them. Within the first year we would seek to perfect our methods and perhaps get some indications of the effect of smoking. In a second year we should begin to get more conclusive data on the effect of smoking on the steriod picture in man.

Signature
Director of Project

1003541277

6. Budget Plan: TOBACCO [illegible]
For first year 0 FIFTH AVE.

Salaries	*See detail below	$7400
Expendable Supplies		200
Permanent Equipment		1150
Overhead	**See below	915
Other	10%	400
Total		$ 10065

7. Anticipated Duration of Work:
At least two years will be needed to clarify the questions raised, provided some positive findings turn up. If the experimental plans here outlined are fruitless this should become obvious after one year.

8. Facilities and Staff Available:
A three room completely detached laboratory with thermostatic control of temperature (no provision for cooling air). Standard laboratory equipment.
Staff: Clayton F. Holoway, Assistant Professor, research chemist currently on summer assignment with Argonne Laboratory in steroid research.
Three graduate students -- two with one year of experience in the project.
Arthur H. Steinhaus, Professor of Physiology -- Director of the project.

9. Additional Requirements:
We now have one Coleman photoelectric colorimeter. We may need a second one -- a px spectrophotometer. This would be a requirement for the second year.

10. Additional Information (Including relation of work to other projects and other sources of supply):
It is conceivable that from a study such as this one some clues may emerge concerning a mechanism for possible sex differences in susceptibility to tobacco smoke.
Reprints of a preliminary report of our work are attached.

*Salaries:
One trained chemist 1/4 to 1/3 time 10 months $2,000
One graduate student - chemist - 1/2 time 10 months 1,800
One graduate student - histologist - 1/2 time 10 months 1,800
One graduate student - technician-physiologist - 1/2 time 10 months 1,800
$7400

**Permanent Equipment:
10 exercise wheels @$65 $650
A second smoke box and smoking machine as intimated in Mr. Hockett's letter (this his a wild guess) 500
$1150

Signature /s./ Arthur H. Steinhaus
Director of Project

/s./ not distinguishable
Business Officer of the Institution
President